

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A computer implemented design method for characterizing a circuit at a hardware level description, comprising ~~the steps of~~:
creating a behavioral level description using a descriptive netlist of said circuit;
generating symbolic equations for components of said behavioral level description using a computer; and
partitioning said behavioral level description using a computer by inserting a marker component into said behavioral level description of said circuit to simplify subsequent processing used to provide equivalence between said behavioral and hardware level descriptions~~[[.]]; and~~
using current time counts of each clock cycle to compute an index for said marker component.
2. (currently amended) The method of claim 1 further comprising ~~the step of~~ back-substituting in said symbolic equations until output variables are expressed in terms of input variables that determine said output variables.

3. (currently amended) The method of claim 1 further comprising ~~the steps~~
~~of~~ transforming said behavioral level description to produce symbolic and numeric files
for compilation to gates and proof of functionality.

4. (currently amended) The method of claim 1 further comprising ~~the step of~~
defining said marker component using a unique symbolic name.

5. (cancelled)

6. (currently amended) A method for characterizing a circuit at a hardware level description, using a processor, comprising ~~the steps of~~:

creating a behavioral level description of said circuit;

generating symbolic equations for components of said behavioral level description using the processor;

partitioning said behavioral level description using the processor by inserting a marker component into said behavioral level description to simplify subsequent processing used to prove equivalence of said behavioral and hardware level descriptions; ~~and~~

defining said marker component using a unique symbolic name[[]];

maintaining a running count of time during a circuit simulation; and

forming said behavioral level description to include a descriptive netlist.

7. (currently amended) The method of claim 6 further comprising ~~the steps of~~:

~~keeping a running count of time during a circuit simulation; and~~

computing an index for said marker component using the running count of time.

8. (currently amended) The method of claim 7 further comprising ~~the steps of~~:

generating an output string; and

printing said output string to an equation file.

9. (currently amended) A method for characterizing a circuit at a hardware level description, using a processor, comprising ~~the steps of~~:

creating a behavioral level description of a circuit including a plurality of components;

partitioning said behavioral level description, using the processor, by inserting a marker component into said behavioral level description to simplify subsequent processing used to prove equivalence between said behavioral and hardware level descriptions and to create a modified behavioral level description; ~~and~~

constructing symbolic hardware description language code from said modified behavioral level description using the processor[[.]];

forming a running count of time during a circuit simulation; and

forming said behavioral level description to include a descriptive netlist.

10. (currently amended) The method of claim 9 further comprising ~~the step of~~ constructing symbolic C code from said modified behavioral level description.

11. (currently amended) The method of claim 10 further comprising ~~the step of~~ confirming that said C code is functionally equivalent to said hardware description language code.

12. (currently amended) The method of claim 11 further comprising ~~the step of~~ constructing numeric C code from said modified behavioral level description.

13. (currently amended) The method of claim 12 further comprising ~~the step~~ of confirming that said numeric C code is functionally equivalent to said symbolic C code.

14. (currently amended) The method of claim 13 further comprising ~~the step~~ of confirming that said numeric C code is functionally equivalent to said symbolic hardware description language code.